# Valgrind



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# List of topics

- Review

- Common parameters

- Common errors checking memory

- Leak types

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# Introduction

Instrumentation framework to build analysis tools

- It has tools that allows you to debug and profile programs

- Very commonly used in a lot of projects and companies

- CAUTION: Veeery slow!!

# Tools

- It includes tools for:

  - memory error detector (memcheck (default))

  - thread error detector (hellgrind)

  - cache and branch-prediction profiler (cachegrind)

  - call-graph generating cache profiler (callgrind)

  - heap profiler (massif)

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# Usual parameters

- num-callers

- db-attach

- trace-children

- suppresions

# Common errors

- Illegal read / Illegal write errors
- Use of uninitialized values
- Illegal frees
- When a block is freed with an inappropriate deallocation function
- Passing system call parameters with inadequate read/write permissions

# Common errors (II)

- Overlapping source and destination blocks
- Memory leak detection

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# Leak types

- Still reachable: A pointer to the start of the block is found

- Possibly lost, or "dubious": A pointer to the interior of the block is found.

- Definitely lost, or "leaked": The worst outcome is that no pointer to the block can be found.

# References

- http://valgrind.org/

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# Acknowledgments

- Alejandro García Castro